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## GEOGRAPHICAL RECORD

### NORTH AMERICA

**TOPOGRAPHICAL MAPS OF COUNTIES.** A demand has appeared for government topographic maps by county units. The U. S. Geological Survey has accordingly decided to try the experiment of publishing such maps. The first county map, which has just been issued, is of Jefferson Co., Ky. The area was surveyed in cooperation with the Kentucky Geological Survey, the State and the Federal surveys each contributing to the cost of the field work. Jefferson is one of the most irregularly shaped counties in the State and includes portions of the areas shown on the Geological Survey's Kosmosdale, New Albany, Prospect, Louisville, Taylorsville, and La Grange topographic atlas sheets. The map shows most of the county as rolling, although the southwestern portion is almost mountainous. This county map is believed by officials of the Survey to be the most finished and perfect example of a county map which has been published in the United States. The scale is 1:62,500, or approximately 1 mile to an inch, and the contour interval is 20 feet. The map is sold at twenty cents a copy.

**THE UNITED STATES-CANADA SURVEY.** During the summer of 1911 the joint commission appointed and authorized by the Governments of Canada and the United States to locate and mark the boundary line separating British territory from Alaska advanced field operations northward along that part of the 141st meridian which extends from the Porcupine River to the Arctic Ocean. This work was a direct continuation of the boundary survey that was carried northward from Yukon River to the Porcupine River during the summers of 1909 and 1910. The commission expects to complete this part of the survey in 1912.

The 320 miles through which the 141st meridian extends between the Yukon River and the Arctic Ocean is crossed about midway by the Porcupine River, which thus separates the region into north and south subdivisions that form convenient units for geographic and geologic description. The southern subdivision, about 175 miles in length, may be designated as the Yukon-Porcupine section, and the northern one, about 145 miles in length, the Porcupine-Arctic section.

The Porcupine River is easily navigated by shallow-draft steamboats to New Rampart, an Indian trading settlement on the north bank of the river just east of the boundary line, or about 225 miles above its confluence with the Yukon near Fort Yukon. It thus affords a natural route for the transportation of supplies and makes it practicable to maintain a very convenient base of operations for both sections of the boundary at this point.

At the close of the field season of 1910 there still remained in the northern half of the Yukon-Porcupine section a stretch of about eighty miles south from the Porcupine, the final work of permanently placing the intermediate monuments at intervals of three to five miles and of clearing a strip forty feet wide through the timbered portions along the line. There also remained the topographic mapping of a strip two miles wide on each side of the line for about forty-five miles south from the Porcupine. Of this work the mapping was completed to the Porcupine in July, 1911, but, owing to unforeseen delays, the setting of the monuments and clearing through timber lacked thirty miles of reaching the Porcupine. This work will be completed in 1912.

In the meantime field work was commenced on the Porcupine-Arctic section at New Rampart in June, 1911, and continued northward until the middle of August. The 141st meridian was located to a point within seven miles of the Arctic Ocean. The topographic mapping of the four-mile strip along the line was completed for about 115 miles, or within about thirty miles of the Arctic coast. The boundary was marked with permanent bronze monuments at intervals of four or five miles over approximately seventy miles, or about half the length of the section north from the Porcupine, and the strip forty feet wide was cleared through such timbered portions as occurred in this distance. (*Bull. 520 K, U. S. Geol. Surv., 1912, pp. 3-4*)

**EFFECTS OF FORESTS UPON STREAM FLOW.** That the forest cover of the White Mountains has a distinct effect upon the navigable streams which head in that

region is the statement of the United States Geological Survey. The Director of the Survey has filed his preliminary report on the White Mountains with the National Forest Reservation Commission, and the findings are favorable to the purchase of lands under the Weeks law. The hydrometric showing presented in the preliminary report covers results on two small, almost exactly similar drainage basins of about five square miles each, on the east branch of the Pemigewasset River, one largely clothed with virgin timber and the other deforested and burned. Measurements of precipitation over the areas and of the run-off of the respective streams show that not only was the snow held better in the forested area, but that during a period of seventeen days in April, including three extended storms, the run-off of the stream in the deforested area was a comparative flood—practically double that of the stream flowing through the forested area.

**THE GEOGRAPHIC SOCIETY OF WISCONSIN.** This Society has been organized under the presidency of Mr. J. A. Merrill of Superior. Its members are teachers of geography. An annual meeting will be held in conjunction with the State Teachers' Association. The programme will consist of papers on professional subjects and reports of work done in various sections. Models and maps made by members will be shown. It is expected also, if the members approve of the plan, that each member shall select a special topic for investigation and report his results to the Society. Each member will make a report on his work at least every other year. It will consist largely of personal investigations of the region near his home, or some research topic in which he is specially interested. These reports are to be duplicated and sent to each member of the Society. It is also planned to organize auxiliary societies to be called Outing Clubs, composed of students and teachers, for the purpose of studying the local surroundings and becoming acquainted with the geography of the home district. This work will not only include geography, but nature study and biology also, as far as these subjects may interest students in the high school, normal school or college. The Outing Clubs are to be affiliated with the State Geographical Society and are to report to its secretary once a year. The secretary is to make duplicates of the reports and send them to presidents of the different Outing Clubs, so that each part of the State may become acquainted through this vigorous first hand touch with the other regions of Wisconsin.

**CANADA'S ENLARGED PROVINCES.** In March last the Canadian parliament enlarged the provinces of Quebec, Ontario and Manitoba. The area of Quebec was increased from 351,873 to 706,834 square miles; Ontario from 260,862 to 407,262 square miles; Manitoba from 73,732 to 251,832 square miles. The areas thus added are capable of considerable development, their progress will be stimulated by their incorporation in strong provincial governments and they will be of great benefit to the developed regions with which they are now politically united.

Quebec now possesses the whole of the wide Labrador Peninsula from the Gulf of St. Lawrence to Hudson Strait, with the exception of the Atlantic coastal strip which belongs to Newfoundland. She already possessed the southern part of Labrador bordering on the Gulf of St. Lawrence whose extensive forests are now the field of a large pulp wood industry and whose large potentialities in the form of water power will some day be utilized. There are large resources in the northern region now acquired, in forests, fisheries, etc.

The northern boundary of Ontario, formerly following the Albany river in the west, now follows the west coast of Hudson Bay to a little south of Port Nelson, from which a straight line extending S. W. forms the new boundary between Ontario and Manitoba.

Two-thirds of Keewatin is now included in the new Manitoba, which thus controls the entire territory through which the proposed Hudson Bay R.R. is expected to carry much of the wheat of the western provinces to Europe by the new land and water route whose development has now been taken in hand.

**RADFORD IN THE CANADIAN BARREN GROUNDS.** The Society has received a letter from Harry V. Radford, M.Sc., C.E., dated Dec. 10, 1911, at the igloo of Chief Akulak, Inland Eskimo winter encampment, at the head of Schultz Lake, lower Thelon River, 64°40' N. 98°27' W. The ton of supplies purchased for him by the Arctic Club of New York reached him at the mouth of Chesterfield

Inlet in September last, where they were landed by the *Pelican* of the Hudson Bay Company. That company loaned Mr. Radford a small schooner, the *Chipman*, which took him, Mr. Street and three Eskimos with the supplies up Chesterfield Inlet and to the head of Baker Lake. He says that the Inlet may be safely ascended by steamers drawing at least fifteen feet and that smaller vessels can ascend the twenty-five-mile river and reach the head of Baker Lake without difficulty. Baker Lake is an immense inland harbor nearly sixty miles long.

He landed in Chipman Cove, on Oct. 13, where the schooner was beset with ice in a few hours. He sent his Eskimos to the head of Schultz Lake to borrow a sledge and dogs, and on Nov. 13 the party, with about half of their supplies, reached the Eskimo encampment, where they found thirty-two Eskimos living in four igloos. Chief Akulak invited the party to be his guests and built them a snow room connecting with his own igloo. At the time of writing, Mr. Radford was trying to persuade some of the Eskimos to accompany him on his proposed journey to the Arctic coast, this year, but they hesitated to enlist. All the natives who went with Hanbury along the northern coast, in 1902, have since died and the men at Akulak's igloo have heard that the northern country is a starvation land and that the few people living there would be unfriendly to them. Unless Mr. Radford obtains more native assistance he will not be able to go to the northern coast.

He is enlarging his collection of Arctic mammals and birds, has procured much anthropological data, collected a vocabulary of 500 Eskimo words, the dialect spoken at his winter camp, made small ethnological collections from several communities, kept complete meteorological records and added some details to the maps. He is about 300 miles inland from the Hudson Bay coast and the nearest railroad point is Gimli, Manitoba, 1,600 miles distant.

**STUDYING BIG GAME.** Frederick K. Vreeland of Montclair, N. J., and William F. Patterson of Milburn, N. J., started in July on a trip into the northern parts of Alberta and British Columbia in the interest of the Smithsonian Institution. Their purpose is to determine the northern limit of the habitat of the Big Horn sheep of the Rocky Mountains; to ascertain if in the northern part of British Columbia the Big Horn and the Stoni sheep occupy the same territory; and to capture specimens of both varieties, as also of white goat, mountain caribou, and brown bear. They expect to be gone three months. They will travel by rail to the end of the track on the Grand Trunk Pacific at the Fraser River. From this point they will proceed in canoes by way of the Crooked River to the Parsnip River. When the headwaters of that stream are reached the explorers will make a portage to the headwaters of the Peace River and there re-embark. The two naturalists will explore the mountain wilds on both sides of the Peace River, shooting such specimens as they desire and photographing the country. They expect to get many photographs of wild life in its native haunts. The Canadian law which forbids the exportation of mountain sheep, goats and caribou, will not apply in the present instance, as the Canadian government has conceded the request of the Smithsonian Institution. Mr. Vreeland hunted mountain sheep and goats in the Canadian Rockies several years ago.

## AFRICA

**THE LOBITO RAILROAD.** This railroad is to extend from Lobito Bay, a little north of Benguela, Angola, to Elizabethville, and will be the rail outlet to the Atlantic of the Katanga copper and gold fields. The line is now operated to Lepi station (km. 360). The contract for the construction of the succeeding 270 kilometers to Bihé has been awarded by the government to Pauling & Co. It is expected that this section will be in operation by the middle of 1913. Beyond this point the right of way has been pegged to Cuivre (km. 783.5) and a preliminary survey to Matota (km. 868.5) has been completed.

## ASIA

**SURVEY OF THE MOUTH OF THE MENAM RIVER.** According to the *Daily Consular and Trade Reports*, the Hydrographic Department of the Siamese Navy has begun a survey of the mouth of the Menam River with a view to improvements that will make the river navigable by vessels of large tonnage to Bangkok,

the capital of Siam and one of the great ports of southern Asia. The capital is situated about thirty-nine miles up the river and occupies both banks of the Menam. The channel has a depth of not less than thirty feet as far as Bangkok, but navigation is impeded at the mouth by a bar which can be crossed by no vessel of over 350 tons. The result is that most vessels in the sea trade are compelled to anchor at the bar and their cargoes are carried to and from the capital on boats. The city has a population of about 500,000. The growing industries and commerce of Siam are in great need of the improved facilities for the trade of its principal port which it is now expected to provide.

**TURKESTAN FOGS.** In the *Quarterly Journal of the Royal Meteorological Society* (Apr., 1912) are reprinted extracts from a communication by H. A. Dirmo, originally published in the *Journal Cpetnoi Agronomii*, concerning the so-called "Turkestan Fogs." These are characteristic phenomena in the south-eastern portion of Russia. The population stands in fear of them because of the damage which they are supposed to do to agriculture. They occur twice a year, in spring (April) and in late summer (July-August), and are dust fogs, which the east winds raise in the deserts of Central Asia and which are carried to a great distance when meteorological conditions are favorable. The air is very dry during the prevalence of these fogs, and it is this dryness which is injurious to plants.

The author, however, as a result of his ten years' observations in the Government of Saratov, finds that there seems to be no relation between the condition of the harvest and the duration of these fogs. A series of detailed descriptions of the spring fogs is given, these being the most characteristic, and there is also a set of tables setting forth the meteorological conditions of the fogs. In the spring fogs (*Vessennaia Mгла*) the material transported is of desert origin, while in the *Lietnaia Mгла* (summer fogs) it is mostly of local origin. The author also lays emphasis upon the importance of these fogs in the formation of saline deposits.

R. DEC. WARD.

**COURSES ON THE GEOGRAPHY OF THE ORIENT.** In addition to its courses on Oriental languages the École Spéciale des Langues Orientales Vivantes of Paris regularly offers courses on the geography, history and legislation of the Mohammedan countries and of the Far East. The course dealing with the Far East is in the hands of Prof. Henri Cordier, the well-known Orientalist and member of the Institute. During the past winter term he lectured on the history, geography and customs of China. The course on the Mohammedan countries is given by M. Paul Ravaisse, *chargé de cours*. Under this general title he gave two courses during the term: one on the geography and history of Egypt, the other on the geography of the Near East and the history of Arab civilization.

## EUROPE

**CHANGE OF PUBLICATION.** The series of monographs published at irregular intervals since 1902 under the joint auspices of the Oceanographical Institute and of the Geographical Institute of the University of Berlin under the title of "Veröffentlichungen des Instituts für Meereskunde und des Geographischen Instituts an der Universität Berlin" has been amalgamated with the "Geographische Abhandlungen" founded in 1886 and edited by Prof. Penck. The publication in its new form is entitled "Geographische Abhandlungen: Neue Folge," with the sub-title "Veröffentlichungen des Geographischen Instituts an der Universität Berlin." The first number to appear in the new series is numbered Vol. X, No. 1, thus continuing the numeration of the "Geographischen Abhandlungen."

The series of monographs which thus ceases to be published independently was instituted by von Richthofen on the occasion of the founding in 1902 of the Institut für Meereskunde, whose activities were and are closely allied to those of the Geographical Institute of the University. Of the fifteen notable monographs published in this series mention may be made of the following: "Bericht über die wissenschaftlichen Arbeiten der Deutschen Südpolar Expedition unter Leitung von Erich von Drygalski" (Nos. 1, 2 and 5); "Die nordwest-europäischen Welthäfen in ihrer Verkehrs- und Handelsbedeutung" by Kurt Wiedenfeld (No. 3); "Sitia, die Osthalbinsel Kretas: Eine geographische Studie" by Leonidas Chalikiopoulos (No. 4); "Die Eistrift aus dem Bereich der Baffin-Bai

beherrscht von Strom und Wetter" by Ludwig Mecking (No. 7); "Beiträge zur Kenntnis der morphologischen Wirksamkeit der Meeresströmungen" by Alfred Rühl (No. 8); "Die Faktoren der Wüstenbildung" by Helene Wiszwianski (No. 9); "Die Stellung Armeniens im Gebirgsbau von Vorderasien" by Gustav W. v. Zahn (No. 10); "Die italienischen Portolane des Mittelalters: Ein Beitrag zur Geschichte der Kartographie und Nautik" by Konrad Kretschmer (No. 13), reviewed in *Bull.*, Vol. 41, 1909, pp. 630-631.

THE INTER-POLAR COMMISSION. The Inter-Polar Commission will meet at Rome during the meeting of the Tenth International Geographical Congress, on April 2, 1913.

#### PHYSICAL GEOGRAPHY

NEW RECORD IN OCEAN DEPTHS. A cablegram from Berlin says that the German survey ship *Planet* sends word from the Pacific that she has made the deepest sounding thus far taken. About forty sea miles off the north coast of Mindanao, Philippine Islands, she has found a depth of 32,078 feet. In other words, the Pacific where the sounding was taken, has a depth of 6.07 miles, exceeding by 482 feet the greatest depth hitherto known.

In 1901, the United States survey ship *Nero*, while studying out a route for our cable line to the Philippines, made a sounding some distance to the south-east of the island of Guam of 31,596 feet, which beat the world's record for sea depths up to that time. This is a depth of 5.98 miles. This location is now known as the Nero Deep. The surpassing sea depth now discovered may appropriately be named the Planet Deep.

This is the second discovery that the *Planet* has made in the neighborhood of the Philippines. A few years ago she traced a deep trough extending for over 200 miles along the east coast of Luzon and only twenty-five to thirty miles from it. She found that the ocean floor descends quite steeply from the island to the trough. This fact and her present discovery probably indicate that the submarine platform on which the archipelago stands, ends rather abruptly on the Pacific front of the islands. The *Challenger* expedition originated the practice of designating all areas with a depth exceeding 18,000 feet as "deeps" and giving a distinctive name to each of them. Some fifty of these deeps are now known.

FROST FORECASTING AND PROTECTION.—The United States Weather Bureau officials on the Pacific coast are giving more and more attention to frost forecasting and to frost protection, and in connection with the effort to improve these forecasts the local conditions of frost occurrence are being studied in great detail. Fruit raising has increased enormously in the North Pacific States of late years, and it is estimated that the number of trees which will come into bearing in the next five or six years will increase the acreage at least tenfold. These fruit interests want to know "just how cold it will get, and just when it will be necessary to start the fires." Mr. E. A. Beals, District Forecaster at Portland, Ore., has been making investigations in four important fruit districts, the results of which have now been published. Boise and Lewiston, Idaho, and the Rogue River Valley and the Yakima Valley were selected as districts in which such detailed observations should be made. "Key" stations were established in these districts, and competent observers were detailed to carry out the work. The "patchiness" of frost occurrence, and the considerable differences of temperature at places which are very near together are clearly indicated in the results of the observations. There are also interesting details regarding the local adiabatic warming of rapidly descending currents of air at the outlets from higher valleys, giving higher temperatures and frequent immunity from frost near these outlets. Many of these details are worked out, and illustrated by means of sketch topographic maps. Several interesting conclusions are reached.

For example, regarding the somewhat disputed connection between the dew-point and frost we find (p. 38) that dew-point observations taken from two to four hours later than the time of the regular evening observation agree more closely with the following minimum temperature than do those taken at the regular hour, and that the average difference and the range of the differences between the dew-point and the following minimum temperature are greatest with clear or partly cloudy weather and least with cloudy weather. Frosts are classi-

fied as follows: First, the common hoar frost, which occurs when the temperature sinks to the dew-point and the dew-point is below freezing. Second, a dry freeze, when the temperature sinks below the freezing-point and the dew-point is still lower than that mark. Third, general "freezes," when the air is thoroughly mixed and the whole mass is below freezing. The first two are usually the most damaging. It is probable that the most damage is done by a dry freeze, as the thawing of a plant which is encased in ice is slower than the thawing of one which is frozen without such a covering. In the case of a general freeze the weather is usually cloudy or partly cloudy, and the winds are always somewhat brisk, if not actually strong. The thawing in such cases is slow. These are the freezes concerning which the statement is often made, "The damage was not as great as expected." ("Forecasting Frost in the North Pacific States," by F. A. Beals, *U. S. Dept. of Agric., Weather Bureau, Bull.* 41, 1912.)

R. DEC. WARD.

**MEASUREMENTS OF DEW.** The measurement of dew has always been a difficult problem, and no form of "drosometer" has proved to be entirely satisfactory. Yet dew, in some climates, is of considerable importance for vegetation, and its measurement is distinctly worth while as a part of the regular meteorological record. At a recent meeting of the Royal Meteorological Society, London, Mr. Sidney Skinner read a paper on "The Drosometer, or Measurer of Dew" (*Quart. Journ. Roy. Met. Soc.*, April, 1912), in which he described a new form of such an instrument. This consists of a hemispherical glass vacuum-jacketed vessel, of the type designed by Sir James Dewar for holding liquid air, which is placed in a box having a circular aperture in the top, through which the cup is exposed, with its rim flush with the exterior surface of the box. When this is exposed to the sky the glass radiates and cools until dew is deposited on the interior of the hemispherical cup. As the vacuum at the back of the cup is an exceedingly good non-conductor, it follows that the heat which is lost by radiation from the inner surface of the cup must be drawn from the air in the cup, and as soon as this is reduced to the dew-point, moisture begins to form on the glass. In the morning, after exposure during a clear night, the small drops separated on the glass have run together, and a circular pool is found at the bottom. The cup is generally exposed at sunset, and taken in in the morning before the rays of the rising sun have reached the place where it stands. A rain-gauge is placed by the side of the drosometer, and consequently the presence of rain in any appreciable quantity can be recognized at once.

R. DEC. WARD.

#### PERSONAL

**CAPTAIN AMUNDSEN.** The Livingstone gold medal of the Royal Scottish Geographical Society has been awarded to Captain Roald Amundsen for his geographical discoveries on his recent expedition to the south pole.

**W. M. DAVIS AND R. A. DALY.** Dr. W. M. Davis has retired from the Sturgis Hooper professorship of geology at Harvard University. He will continue to reside at Cambridge. Professor R. A. Daly, of the Massachusetts Institute of Technology, has been appointed to the chair vacant by the retirement of Professor Davis.

**O. D. VON ENGELN.** Dr. O. D. von Engeln has been promoted to an assistant professorship of geography at Cornell University.

**U. S. GRANT.** Prof. U. S. Grant of Northwestern University, intends to spend most of the summer in Evanston, completing a report on part of the Kenai Peninsula, Alaska, and also completing, in cooperation with Mr. G. H. Cady of the Illinois Geological Survey, the La Salle-Hennepin folio for the U. S. Geological Survey, which is being prepared in cooperation with the Illinois Geological Survey. The Geographic Society of Chicago is contemplating an excursion to the Glacier National Park this summer, under the leadership of Professor Jesse L. Smith, chairman of the excursion committee of that society. If the plan is carried out Prof. Grant expects to go along as scientific adviser of the party.

**F. H. NEWELL.** Frederick Haynes Newell, director of the United States Reclamation Service, delivered the commencement address at the Case School of Applied Science on May 29, his subject being "The Engineer in Public Service." At the close of the address the honorary degree of doctor of engineering was conferred upon him.